U.S. DEPARTMENT OF ENERGY

*An Overview of the DOE's **S**mall **B**usiness **I**nnovation **R**esearch (SBIR) and **S**mall Business **T**echnology **TR**ansfer (STTR) Programs*

Chris O'Gwin, DOE SBIR/STTR Programs

Nanotechnology Innovation Summit

National Harbor, MD

December 2010

U. S. Department of Energy Mission

1. Advancing the Nation's Economic and Energy Security
2. Promoting Scientific and Technological Innovation
3. Ensuring the Environmental Clean-Up of the National Nuclear Weapons Complex

DOE SBIR/STTR
Program Features

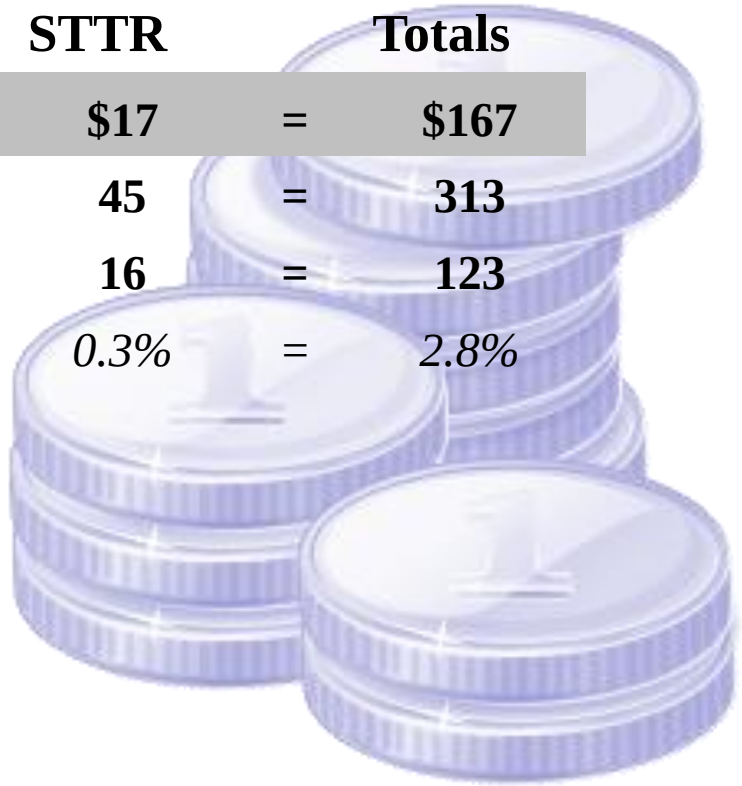
- Eleven Federal Agencies Participate in SBIR/STTR
  - DOE is 3rd largest funding agency behind DoD and HHS
- *Competitive* Grants Driven Program
- Two Phased Approach
  - $150K (SBIR) and $100K (STTR) Phase I (9 months) – Feasibility
  - $1M (SBIR) and $750K (STTR) Phase II (24 months) – Development
- Must Be Awarded DOE Phase I to Compete in Phase II
- SBIR: PI must be Employed by the Small Business (66/50%)
- STTR: PI may be Employed by SBC or Research Partner (40/40%)
- Offer Valuable Technical & Commercialization Assistance

DOE's SBIR/STTR Budget vs. Awards

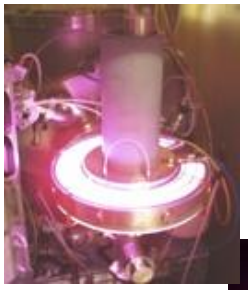
(in Millions $)

	SBIR		STTR		Totals
FY 2010 Budget	**$150**	**+**	**$17**	**=**	**$167**
Phase I Awards	**268**	**+**	**45**	**=**	**313**
Phase II Awards	**107**	**+**	**16**	**=**	**123**
DOE R&D Set-Aside	*2.5%*	+	*0.3%*	=	*2.8%*

(Approx. $5.9B in Extramural DOE R&D)



FY 2010 SBIR/STTR
Technical Topics vs. Proposals Reviewed







Funding Program	Topics – Proposals
Energy Efficiency & Renewable Energy*	12 – 508
Fossil Energy*	8 – 173
Advanced Scientific Computing Research	7 – 151
High Energy Physics	7 – 129
Basic Energy Sciences (BES)	7 – 88
National Security – (Nuclear Nonproliferation)	6 – 86
Biological & Environmental Research	6 – 73
Nuclear Physics	5 – 88
Electricity Delivery/Reliability*	3 – 60
Fusion Energy	3 – 71
Nuclear Energy*	2 – 23
Data Management and Communication (Science)	1 – 19
Environmental Management	1 – 11
Total Topics – Proposals TTM and/or Peer Reviewed	**68 – 1,488**

*Includes BES Co-Funded Topics

FY 2011 SBIR/STTR
Nano-Related Technical Topics

- Topic 1. Advanced Cooling and Waste Heat Recovery: EERE
  - Buildings, Industry, and Transportation
    - Nano-Based, Ultrathin Pipe and Duct Insulation
    - Geoexchange Heat Pump Component R&D
- Topic 16. Instrumentation for DOE Facilities: BES
  - Electron Microscopy & Scanning Probe Microscopy
    - To support materials science & biological R&D at DOE facilities
- Topic 33: Imaging and Radiochemistry: BER
  - Metabolic imaging in living systems, plants/microbial-communities
    - Relevant to biofuel production, bioremediation
    - Transferable to nuclear medicine and NIH/Industry applications
- Topic 47: Deactivation and Decommissioning: EM
  - Developing Nanofibers materials to remove residual radioactive deposits from piping used in the production of nuclear materials

DOE's 3-Year Annual Average Award Statistics

<u>Proposals Rec'd</u> vs. <u>Awards</u>

Phase I:	**~1,677**	**~351 @ ~$100K**
Phase II:	**~320**	**~158 @ ~$750K**

Phase I: Applicant has a **20%** Chance of Award

Phase II: Applicant has a **50%** Chance of Award

DOE SBIR/STTR
Evaluation Criteria for
Phase I and II Proposals

1.Strength of the Scientific/Technical Approach

a) To what extent does the proposed work build upon or move beyond the current state-of-the-art?
b) How new or unique is the idea?
c) How significant is the scientific and/or technical challenge?
d) Is a breakthrough possible?
e) Has the applicant demonstrated knowledge of the subject?
f) How thoroughly have the concepts been presented?

2.Ability to Carry out the Project in a Cost Effective Manner

a) Please comment on the qualifications of the Principal Investigator (PI), other key staff, and consultants, if any, and on the level of adequacy of equipment and facilities

3.Impact

a) Please comment on the significance of the technical and/or economic benefits of the proposed work, if successful
b) Please comment on the likelihood that the proposed work could lead to a marketable product or process, and on the size of the potential market.
c) Please comment on the likelihood that the project will attract further development funding (from private sector sources, Federal, non-SBIR/STTR sources) after the SBIR/STTR project expires.

Evidence of Commercial Potential (Phase II Only)

Department of Energy
SBIR/STTR Solicitation Schedule

Annual Solicitations: Phase I (fall) & Phase II (spring)

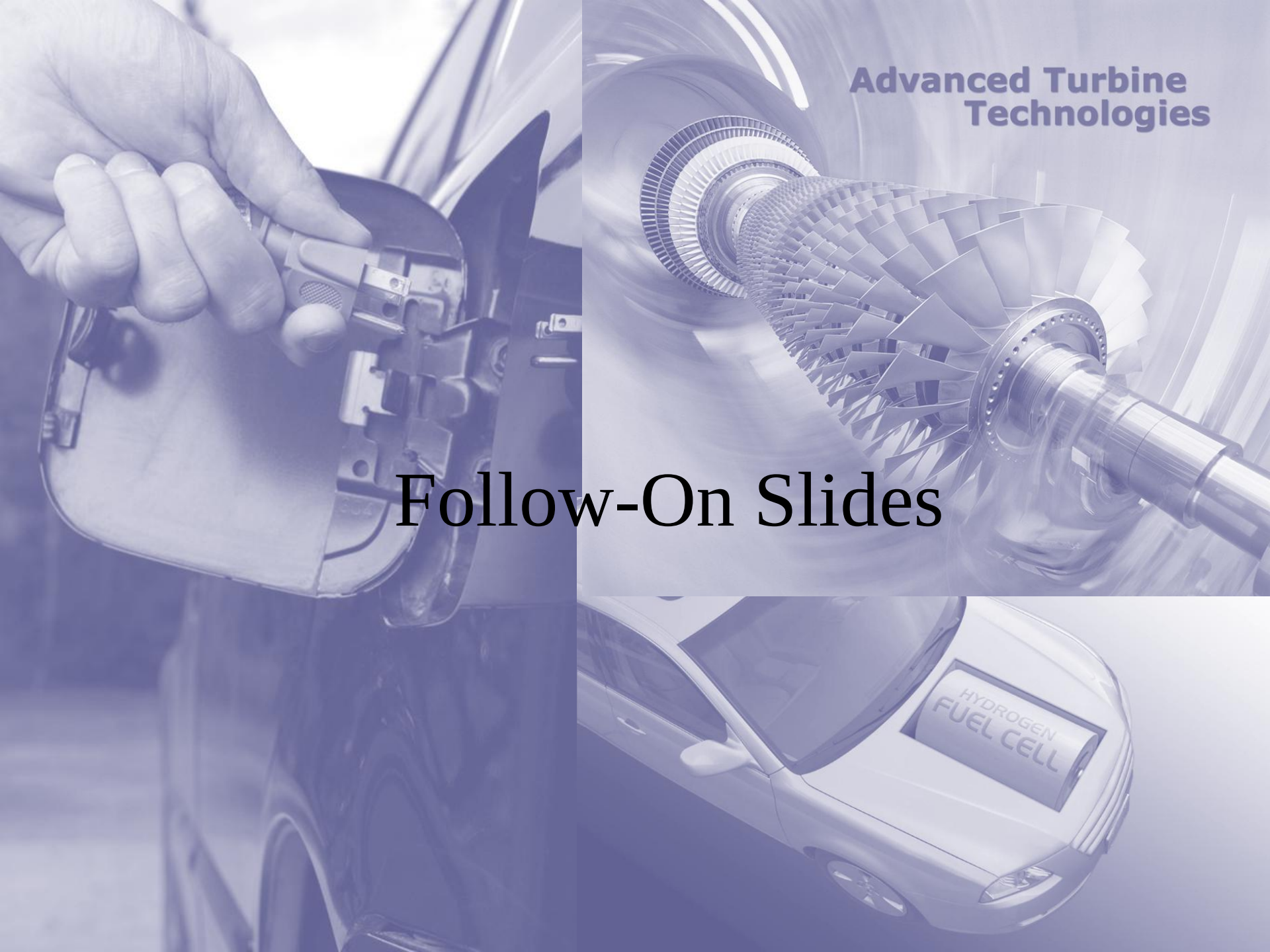
Annual Solicitation	*Phase I*	*Phase II*
Release Date:	**September**	**February**
Closing Date:	**November**	**April**
Award Selections:	**May**	**June**
Grants Begin:	**June**	**July**

Serving Small Business . . .
Technical and Commercialization Assistance

- **Web-Based, Technical Assistance Portal**
  - Pre-Phase I, Phase I & Phase II
  - Self-Help/Self-Paced Tools and Assistance
- **Commercialization Assessments**
  - Phase I & Phase II
  - Trailblazer™, TNA™, and Deal Advisory™

DOE SBIR/STTR Program Contact Information

- SBIR/STTR Web: www.science.doe.gov/sbir
- Email: sbir-sttr@science.doe.gov
- Phone: 301-903-5705
- Technical Assistance Web Site: http://doecapreg.foresightst.com
- SBIR/STTR Presentation May Be Found at: www.science.doe.gov



Follow-On Slides

Some First-Time DOE SBIR Phase I Awardee Stats . . .

FY **2008**

- 281 SBIR Awards to 192 Small Businesses. Of these:
  - 55 or 29% were First-time DOE Winners
  - 35 or 64% of the 55 First-time Winners were First-time DOE Applicants
  - Awards Made in 33 States

FY **2009**

- 319 SBIR Awards to 181 Small Businesses. Of these:
  - 51 or 27% were First-time DOE Winners
  - 22 or 43% of the 51 First-time Winners were First-time DOE Applicants
  - Awards Made in 32 States

Serving Small Business . . . Technical and Commercialization Assistance

Web-Based, Technical Assistance Tools: Pre-Phase I, Self-Help/-Paced Technology Assistance

- **Go/NoGo™ Assessment**
  - Leads You Through Data That Answers Both Questions of Uniqueness & Usefulness of Your Technology
- **Tutorials -** To Improve Your Phase II SBIR Proposal
  - How to Use & Build Upon Your Go/NoGo™ to Write A Better Phase I Proposal
- **Marketing Fact Sheet**
  - Marketing Material Template For Potential Phase III Commercialization Partners, Experts, End-users, and Other Stakeholders
  - It Can Be Attached To Emails, Mailed Separately, or Handed-Out at Trade Fairs or Other Marketing Venues

Serving Small Business . . . Technical and Commercialization Assistance

Tech Assist, Web-Based Tools – Continued (Pre-Phase I & Phase I)

- Comm101™
  - E-training Course - Commercializing New Technologies
- A Basic Primer on SBIR R&D Commercialization
  - *"What Every Researcher Needs to Know About Commercialization"*
    - how to improve your technology's commercialization prospect; and how deals are really done
- SBA's Phase I Proposal Preparation Handbook
  - Well Written Primer on SBIR Proposal Preparation Authored by FS&T While Under Contract to SBA

Serving Small Business . . . Technical and Commercialization Assistance

Centralized Web Repository: R&D-Specific Industry Data

- Market Overviews
  - Market Information Summaries For a Number of Industries
- Technology Roadmaps
  - Documents Developed By Governments, Industry Associations, and Other Authoritative Groups
  - Provide Consensus Technology Objectives Needed to Sustain Short-, Mid-, and Long-term Progress for Specific Applications
  - Addresses Wide Range of Industrial Sectors and Applications, including Company Names, Government Agencies, and Experts Who Participated In Their Preparation
- Regulations and Standards Applicable to SBIR
  - Searchable List of Standards - By Promulgators Or Topics Across A Wide Range of Industries And Technologies

Serving Small Business . . . Technical and Commercialization Assistance

- **Trailblazer™ Assessment** (Initiated early in Phase I Award)
  - Identifies Major Market Niches for Commercialization
  - Develops a Value for the Technology ("Quick & Low Cost")
  - Identifies Commercialization Vehicles & Maps-Out Market Path
- **TNA™ Assessment (**Initiated mid-Phase II)
  - Assesses Potential Applications for an Innovation or Technology
  - Individualized Market Entry Strategy & Launch Tactics
- **Deal Advisories™**
- **Venture Capital Contacts**
  - Venture Contacts Searchable By State And Fields In Which they Invest
- **Pipeline Partners**
  - Catalogue of Companies & Key Individuals Interested in Licensing New Technology
- **K2™: Know-How Knowledge Basecamp**
  - Collaborative Wiki-Format, Knowledge-Sharing Site
  - "Tricks of The Trade . . . If We Do Not Capture It, It Gets Lost"